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WASHINGTON LETTER.

WASHINGTON, MARCH 20, 1892.

ALBATROSS EXPEDITION.—A general sketch of the expedition of the *Albatross* from February to May, 1891, by Alexander Agassiz, is published by permission of the U. S. Fish Commissioner in the first number of the twenty-third volume of the *Bulletin of Comparative Zoology* at Harvard College, dated February, 1892.

Besides the large quantity of scientific results of the various expeditions of the vessels of the U. S. Fish Commission, a great deal of new geography has been given to the world by the same source, chiefly through the intelligence and peculiar fitness for duty of the officers in charge of the Fish Commission's vessels. Prof. Agassiz says: "The more I saw of the *Albatross*, the more I became convinced that her true field is that of exploration. She is a remarkably fine sea boat, and has ample accommodation for a staff of working specialists." Of Lieutenant Commander Tanner he speaks in a highly complimentary manner: "The success of the *Albatross* thus far has depended entirely upon the zeal, energy, intelligence, forethought and devotion of Captain Tanner. . . . In his cruises off the east coast of the United States, and in the Caribbean, to say nothing of his explorations in the Gulf of California, on the coast of California, on the coast of Alaska, and in the Bering Sea, he has accumulated in the *Albatross* endless most interesting material, which no other ship could have got together unless she had another Tanner in command."

There were three routes in the expedition referred to in this article. *First:* [February 22, '91.] From Panama to Point Mala, and next to Cocos Island, from there in a southerly direction, thence north-westerly to Malpelo Island, and back to the hundred fathom line off the Bay of Panama. *Second:* From Panama to Galera Point, across the Humboldt Current to the southern face of the Galápagos, visiting Chatham, Charles, Duncan, and James Islands; thence to Acapulco. *Third:* From Acapulco into the Gulf of California as far as Cape Corrientes, thence to a point off the Tres Marías, and from there to Guaymas [April 23d]. Eighty-four dredging stations were occupied where the trawl, tangles, and tow-nets were used, and five stations at which the surface and sub-marine tow-nets alone were used.

Prof. Agassiz remarks that there can be no more striking contrast than exists between the topography of the two sides of Central America. The Atlantic side, with the Gulf of Mexico and the Caribbean Sea, has great sub-marine banks extending along Yucatan, Honduras and Venezuela, while on the Pacific side the continental slope is steep, the 2,000 fathom line often coming within 100 miles of the coast line. Concerning the hydrography of the Galápagos region, our knowledge is still quite incomplete. Nothing is known of the depth of the channels between Abingdon and Bindloe and Tower, and no soundings exist to show how far to the westward the deep valley of over 800 fathoms separating Bindloe from Indefatigable extends. There seems little doubt that the northernmost islands are themselves separated by comparatively deep water, and in turn separated from the north-eastern group by a tongue of the ocean at least 1,000 fathoms in depth. After further observations concerning the fathom lines connecting the different islands Prof. Agassiz says: "We may therefore look upon the Galápagos Islands as a volcanic group, gradually built up by successive flows of lava upon a huge mound, itself perhaps raised by the same agencies from the floor of the ocean."

Another very interesting feature of this expedition was the observation of the great distance from shore to which true terrigenous deposits were carried. While trawling on the second line between the Galápagos and Acapulco there was not a station occupied of which the bottom could be characterized as strictly oceanic. At the most distant points from shore the bottom specimens invariably showed some trace of admixture of terrigenous material. A very fine mud was the characteristic bottom brought up, often very sticky, and enough of it usually remained in the trawl, even when coming up from depths of over 2,000 fathoms, materially to interfere with the assorting of the specimens contained in the hauls. This mud continued all the way from the Galápagos to Acapulco. In none of the dredging on the Atlantic side of the Isthmus, from a depth of over 1,500 fathoms, have such masses of decomposed vegetable matter been found as on this expedition. The deepest sounding of this cruise was at a point somewhat more than half way between Culpepper and Acapulco, being 2,232 fathoms. The surface temperature at this point was 82°, and that of the bottom 35° 8′; the bottom temperature being below 36° in the whole of the great basin extending between the northerly slope of the Galápagos and the continental slope off Acapulco.

A considerable portion of the "Sketch" of this expedition is devoted to a study of the pelagic faunæ, in which the writer says he has "always been more or less interested." He severely criticises Haeckel's study, and after reviewing the experiments by the *Challenger*, the *Gazelle*, the *Blake*, the *Vettor Pisani*, Dr. Chun, Victor Hensen, and the *Albatross*, in investigating the region of deep sea fauna, he concludes:

"Our experience in the Gulf of California with the Tanner self-closing net would seem to indicate that in a comparatively closed sea, at a small distance from land, there may be a mixture of the surface species with the free-swimming deep sea bottom species, a condition of things which certainly does not exist at sea in deep water, in an oceanic basin at a great distance from shore, where the surface pelagic fauna only descends to a comparatively small depth, *i.e.*, about 200 fathoms, the limits of the depth at which light and heat produce any considerable variation in the physical condition of the water. The other experiments with the Tanner net, made in an oceanic basin on the way to Acapulco from the Galápagos, and to the Galápagos from Cape San Francisco, seem to prove conclusively that in the open sea, even when close to the land, the surface pelagic fauna does not descend far beyond a depth of 200 fathoms, and that there is no intermediate pelagic fauna living between that depth and the bottom, and that even the free-swimming bottom species do not rise to any great distance, as we found no trace of anything within 60 fathoms from the bottom where it had been fairly populated."

The Galápagos Islands remain to-day as when discovered two centuries ago, uninhabited, with the exception of a colony maintained on Chatham Island.

The topography of each island of the group is detailed with considerable minuteness in the "Sketch." The writer criticises sharply Dr. Baur's views of the origin of the fauna and flora (*Am. Naturalist*, March, April, '91), which, he says, are entirely at variance with what is known of their geological structure. The majority of the islands are formed around a central crater, or centre of elevation. They have increased in size and height from successive lava flows, and the volcanic activity of some of the islands has continued to comparatively recent times. Prof. Agassiz says that it is quite probable that the age of the Galápagos does not reach beyond the earliest tertiary period, and many parts have undoubtedly not been formed before the present period, so that the time is geologically short during which so many animals and plants peculiar to the islands have developed from their South American, their Central American, their Mexican, or their West Indian ancestors.

The sketch of the expedition of the *Albatross* is accompanied by twenty-two indispensable plates, and, at the end, a list of twenty-eight reports on the dredging operations, which are in preparation, with the names of the writers.

BOARD ON GEOGRAPHIC NAMES.—It may be stated as a summary of the first year's work of the United States

Board on Geographic Names, that seventeen meetings have been held, general principles for guiding its decisions agreed upon, and about 2,000 cases decided. The objects of the Board are already so familiar to the American people that there exists no necessity to rehearse them here. As Dr. Mendenhall says : " The general public, the educators, and the educational publishers have manifested great interest in the work of the Board and its decisions have been generally accepted."

The difficulties encountered in settling the questions submitted relative to Alaskan names made it apparent that nothing short of a complete revision of the geographic nomenclature of Alaska would be satisfactory. Accordingly the Board is now engaged in making such a revision, the results of which will be to furnish a geographic dictionary of the Territory. The decisions of questions submitted by the Lighthouse Board and by the Coast and Geodetic Survey go far toward settling the nomenclature of the coast and lake shores. Fully one thousand differences of usage in county and township names have been investigated and decided.

In the first report of the Board recently presented through the President to Congress, Dr. Mendenhall has an interesting paragraph on the " Origin of, and changes in, names," in which after citing natural reasons, or reasons which are not surprising, he says that railroad companies adopt names for stations different from those of the towns or villages in which they are situated and thus divide the usage. He further says ; " To a much greater extent, however, than the railroad has the U. S. Post Office Department confused the nomenclature of the smaller towns and villages by attaching names to the post-offices, not in accordance with those in local usage." There are thousands of cases where the name of the post-office does not conform to the local name of the place in which it is situated.

The three Bulletins issued are reproduced with additions in the annual report already referred to. The members of the Board serve without compensation, and the printer gets his pay through the courtesy of the bureaus most interested. For instance: Bulletin No. 1 was published at the expense of the Smithsonian Institution; No. 2 owed its appearance to the liberality of the Coast and Geodetic Survey, while the Lighthouse Board launched No. 3. It may not be improbable that the Bulletin method will be abandoned, and the Annual Report hereafter contain the decisions of the Board for the previous year.

Lieutenant Commander Richardson Clover having declined to act as Secretary, Mr. Marcus Baker has been elected to that position.

THE BUREAU OF THE AMERICAN REPUBLICS (under the Department of State), an outgrowth of the recent International American Conference, in its first annual report reviews its operations of the year 1891. It claims that it has stimulated emigration to South America, and through the information communicated has been the means of extending the social and commercial intercourse between the United States and the Latin American nations.

Occasional bulletins have been issued, as follows:

1. Handbook of the American Republics (No. 1).
2. Handbook of the American Republics (No. 2).

3. Patent and Trade Mark Laws of America.
4. Money, Weights and Measures of the American Republics.
5. Import duties of Mexico (tariff of 1888.)
6. Foreign commerce of the American Republics.
7. Handbook of Brazil.
8. Import duties of Brazil.
9. Handbook of Mexico.
10. Import duties of Cuba and Puerto Rico.
11. Import duties of Costa Rica.
12. Import duties of Santo Domingo.
13. Commercial directory of Brazil.
14. Commercial directory of Venezuela.
15. Commercial directory of Colombia.
16. Commercial directory of Peru.
17. Commercial directory of Chile.
18. Commercial directory of Mexico.
19. Commercial directory of Bolivia, Ecuador, Paraguay and Uruguay.
20. Import duties of Nicaragua.
21. Import duties of Mexico (tariff of 1891).
22. Import duties of Bolivia.
23. Import duties of Salvador.
24. Import duties of Honduras.
25. Import duties of Ecuador.
26. Commercial directory of the Argentine Republic.
27. Import duties of Colombia.
28. Commercial directory of Central America.
29. Commercial directory of Haïti and Santo Domingo.
30. Annual Report, 1891.
31. Handbook of Costa Rica.

The tariffs and commercial directories of the several republics have been published in English and Spanish, that of Brazil in English and Portuguese. This series will be continued until completed, when they will be bound in a single volume for free distribution among manufacturers and merchants. There has been a Spanish translation of No. 2, and this handbook will be published annually in Spanish and English, corrected to the first of January of each year. Attractive handbooks of Brazil, Mexico and Costa Rica have been published, and similar volumes concerning Colombia, Guatemala, Venezuela and Nicaragua are in course of preparation. There is a demand for these handbooks from the public schools throughout the country.

The code of nomenclature of articles of merchandise exported and imported is more than half completed.

WEATHER BUREAU.—The Weather Bureau, or Signal Service, as it was known prior to July last, has had sufficient development under the Department of Agriculture to indicate the lines that will be laid down to carry out the expressed intention of Congress in transferring the Bureau from the War Department to the Department of Agriculture. The intention was to develop its work in the interest of agriculture, commerce and navigation. The results thus far attained have a look of great promise.

The transfer, which took place July 1, 1891, included the working force of the old Bureau. The office force at headquarters and the observing force outside of Washington were reorganized. The extent of territory assigned to the latter has been, in many cases, enlarged, and the restriction of forecasts to twenty-four hours removed to the extent of allowing observers, especially in harvest season, to predict the weather for more than one day in advance, "whenever the meteorological conditions were so pronounced as to make forecasts for a longer period reasonably certain of verification." There has been quite a marked improvement in the weather maps issued at the principal stations, and several stations not heretofore allowed to issue them are now authorized to do so, notably those at Albany and Oswego in New York; at Charlotte, North Carolina; at Charleston, South Carolina; at Marquette, Michigan; and at Parkersburg, West Virginia. The edition of maps at all stations has been very largely increased. Many stations at military posts have been discontinued and others have been established at the nearest city or town, especially if an agricultural college or station is near the locality. Stations of observation will be established in the cotton and sugar regions, from which reports of temperature, rainfall and frost will be telegraphed to a designated centre daily for publication and dissemination throughout these belts. There was an increase of 100 per cent. in the weather display stations inside of three months. The number of voluntary observers has been increased by several hundred. In one instance, the warning of a killing frost in Wisconsin, August 24th, enabled the owners to save by flooding over one-third of the cranberry crop, representing $125,000. Similar warnings enabled farmers in Minnesota and the Dakotas to prevent damage to their crops by the use of smudges, causing a dense smoke. The Secretary of the Department of Agriculture stated somewhere in his last annual report that *each one* of more than a dozen divisions, whose work he had received, had returned in *actual value* to the county during the past year far more than the *entire annual* appropriation accorded to his Department.

General Greely and some of his predecessors did much to popularize and endear this branch of the Government to the American people. Prof. Mark W. Harrington, the new chief of the Bureau, has facilities very largely increased under the law providing for the transfer to the Department of Agriculture. In justice to General Greely, it must be said that for several years he has persistently urged Congress for legislation that would place the service on the footing which now seems to be assured.

PONKA AND OMAHA INDIANS.—The sixth volume of *Contributions to Ethnology* (Smithsonian Institution, Bureau of Ethnology) is a collection of myths, stories and letters obtained by J. Owen Dorsey from the Ponka Indians, to whom the writer was a missionary from 1871 to 1877, and from the Omahas, with whom he resided from 1878 to 1880. Although this volume is a quarto of 800 pages, the overflow, so to speak, is contained in an octavo pamphlet of about 125 pages, published under the same auspices. These texts will be followed by a Ceghiha-English and English-Ceghiha dictionary and grammar.

EASTER ISLAND.—The extensive and original account of Easter Island, explored in 1886-7 by William

J. Thomson, Paymaster U. S. Navy, has recently been published in separate form by the Smithsonian Institution. It originally appeared in the Report of the National Museum, 1888-9, pp. 447-552. Neither index, nor even a table of contents, accompanies this really valuable contribution to the geography, archæology, natural and civil history of this most interesting locality.

Dr. Charles Girard, a native of France, was for ten years a collaborator with the late Professor Baird in the natural history work of the Smithsonian Institution. He was the pupil and assistant of Agassiz at Neuchâtel, and when the latter came to America Dr. Girard accompanied him and was his assistant at Cambridge, Mass. While in Washington, he also took a medical course at Georgetown College. He remained with the Smithsonian Institution until 1860, when he visited Paris, and during the civil war he accepted a commission to supply the Confederate army with drugs and surgical instruments. He now lives in comparative retirement at Neuilly-sur-Seine, near Paris. While in America he held high rank among descriptive naturalists. His special studies were the herpetology and ichthyology of North America.

Dr. G. Brown Goode, having had for several years in contemplation a bibliography of the writings of Dr. Girard, has now performed that work, and Bulletin No. 41 of the United States National Museum contains a list of Girard's published writings. His career as an author covers a period of about forty years (1850-

1891), and his contributions to science number about eighty-one papers.

SOLAR ECLIPSE, 1893.—Captain McNair, Superintendent of the Naval observatory, remarks,* that the Natal solar eclipse of April 15, 1893 occurs under circumstances so favorable that its observation is extremely desirable. The central line of the shadow sweeps across South America, the Atlantic, and the northeastern part of Africa, and the duration of totality is 4′ 42″ near Ceará, Brazil, and 4′ 10″ near Bathurst, Senagambia. Many of the most important questions relating to the constitution of the sun can be studied only during total eclipses. The whole time available for that purpose is only about three hours in a century. Therefore Capt. McNair says the necessity for utilizing every available eclipse is evident, if we are ever to comprehend that wonderful orb upon which the existence of the human race depends. He hopes that means will be provided for sending one party to Ceará and another to Bathurst.

The removal to the grand new Observatory buildings has not yet taken place.

MOUNT ST. ELIAS.—The height of Mount St. Elias, as ascertained by the National Geographic Society's expedition of 1891, in charge of I. C. Russell, is 18,000 ft., which is 1,400 ft. less than the United States Coast Survey measurement in 1874, and 5,428 ft. more than the La Pérouse measurement in 1786. The position of the mountain by the same authority is Lat. 60° 17′ 51″, Long. 140° 55′ 30″.

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* Annual Report, 1891.

Mr. Russell in his report laid before the Board of Managers of the Society, December 11, 1891,* says appropriately "The geographic position of Mount St. Elias is of popular interest in connection with the boundaries of Alaska. In the convention between Great Britain and Russia, wherein the boundaries of Alaska are supposed to be defined, it is stated that the boundary, beginning at the south, after leaving Portland Channel shall follow the summit of the mountains situated parallel to the coast as far as the 141st meridian, and from there northward the said meridian shall be the boundary to the Arctic Ocean. Whenever the summit of the mountains between Portland Channel and the 141st meridian 'shall prove to be at the distance of more than ten marine leagues from the ocean, the limit between the British possessions and the line of coast, which is to belong to Russia, above mentioned, shall be formed by a line parallel to the windings of the coast and which shall never exceed the distance of ten marine leagues therefrom. As Mount St. Elias is approximately in Long. 140° 55′ 30″ west from Greenwich, as already shown, it is therefore only 4′ and 30″ of longitude or 2 1-2 statute miles east of the boundary of the main portion of Alaska. Its distance from the nearest point on the coast is 33 statute miles. There is no coast range in south-eastern Alaska parallel with the coast within the limits specified by the treaty, and the boundary must therefore be considered as a line parallel with the coast and ten marine leagues, or 34 1-2 statute miles, inland. The mountain is thus one and one-half miles south of the boundary, and within the territory of the United States. Its position is so near the junction of the boundary separating south-eastern Alaska and the North-west Territory with the 141st meridian that it is practically a corner monument of our national domain."

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* Nat. Geog. Mag., v. 3., pp. 231–237.

H.